The Applicants respectfully traverse the Examiner's rejections. The Applicants have amended the claims to more distinctly claim and particularly point that which the Applicants regard as their invention. The claims are both definite and drawn to statutory subject matter.

In view of the above and foregoing, reconsideration and withdrawal of the rejections under 35 U.S.C. § 101 and §112 second paragraph are respectfully solicited.

Rejection under 35 U.S.C. §112, first paragraph

The Examiner has also rejected Claim 6 as containing subject matter which was not described in the Specification in such a way as to enable the skilled artisan to make and/or use the invention. The Examiner further asserts that the Applicants do not disclose the transfection with the Introgen vector without the enhanced green fluorescent protein gene, or the later insertion of the gene into the vector after transfection.

The Examiner has also rejected Claims 16-23 and 24-36, for an asserted lack of enablement. The Examiner asserts that the Specification does not disclose how to make the claimed compositions containing dermal sheath tissue and the claimed carriers, how to make the altered dermal sheath tissue so as to make it more susceptible to transfection, how to make the claimed wound healing system, or how to make the particular matrices containing a gene therapy vehicle.

The Applicants respectfully traverse the Examiner's rejection. The Examiner admits that the Applicants teach transfection of a dermal sheath tissue with a vector containing an Introgen vector containing the enhanced green fluorescent protein gene (specifically citing Page 22 lines 1-9 and line 27 of Page 28 through line 14 of Page 29). Furthermore, the Specification amply teaches how one particular nucleic acid can be obtained, as exemplified with enhanced green fluorescent protein gene (*see* Figure 14 of the instant Specification), and how it then can be inserted into the gene therapy vehicle, *see* Page 16, lines 20-21 and Figure

15 of the instant Specification.[1] Therefore, the skilled artisan would have no problem practicing the present invention as claimed in Claim 6. Furthermore, the skilled artisan would have no trouble substituting an alternative nucleic acid for the one exemplified, *e.g.*, a nucleic acid encoding another protein such as collagen. [2]

The instant Specification further teaches how to isolate and then implant the dermal sheathes of the present invention, *see* line 5 of Page 17 through line 9 of Page 19. Moreover, as stated above, the present invention teaches how to make and use a modified dermal sheath of the present invention, *e.g.*, to transfect cells (*see also* line 27 of Page 28 through line 8 of Page 29). In addition, the instant Specification specifically demonstrates the use of dermal sheathes in wound healing, *see e.g.*, Page 28, lines 4-11. The instant Specification also demonstrates dermal sheath multipotentiallity, *i.e.*, the ability to form a differentiated tissue type (*see* line 24 of Page 26 through line 28 of Page 27). Furthermore, the ability to add known carriers etc. to the compositions comprising the dermal sheath tissue/cells of the present invention is well within the capability of the skilled artisan using the knowledge generally known in the relevant art, and the teachings of the instant Specification. Indeed, the skilled artisan having the instant Specification in hand could readily make and use the invention as claimed.

In view of the above and foregoing, reconsideration and withdrawal of the rejections under 35 U.S.C. §112 first paragraph are respectfully solicited.

Rejection under 35 U.S.C. §102

The Examiner has rejected Claim 15 asserting that it is anticipated by WO93/22430 and by what the Examiner asserts is the Applicants' own disclosure on Page 10 line 6. The Examiner asserts that WO93/22430 teaches a vector having sites for the insertion of genes

[1]Figure 15 was not specifically labeled as such, but from its figure description and its being submitted in between Figures 14 and 16, it is unmistakenly identifiable.

[2]As to the Examiner's allusion to the insertion of a gene into the vector after transfection, the Applicants respectfully admit, that they do not understand this interpretation of the claim, since the skilled artisan would recognize that the gene is inserted into the vector prior to, rather than subsequent to the transfection of the vector into the target cell.

(citing the abstract) and further asserts that the Applicants disclose the commercially available Introgen vector that possesses these sites.

The Applicants respectfully traverse the Examiner's rejection. The Applicants have amended Claim 15 to more distinctly claim and particularly point that which the Applicants regard as their invention. The Federal Circuit has held that:

> "[t]o anticipate a claim, a reference must disclose every element of the challenged claim. . ."*PPG Industries, Inc. v. Guardian Industries Corp.*, 37 USPQ2d 1618 (Fed. Cir. 1996).

However, neither the vector of WO93/22430 nor by the commercially available Introgen vector comprise the gene therapy vehicle of the present invention. Therefore, the vector of Claim 15 is neither anticipated by the vector of WO93/22430, nor by the commercially available Introgen vector.

In view of the above and foregoing, reconsideration and withdrawal of the rejections under 35 U.S.C. §102 are respectfully solicited.

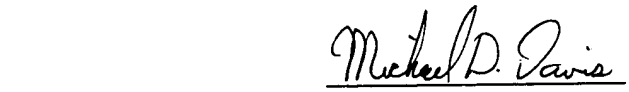
From the above and foregoing, further and favorable action in the form of a Notice of Allowance is believed to be next in order, and such action is earnestly solicited.

Attached hereto is a marked up version of the changes made to the claims by the current amendment. The attached page is captioned "Version with marking to show changes made."

No additional fees are believed to be necessitated by the foregoing amendments. However, should this be erroneous, authorization is hereby given to charge Deposit Account No. 11-1153 for any underpayment, or credit any overages.

In the event that there are any questions concerning this Amendment, or the application in general, the Examiner is respectfully urged to telephone the undersigned so that prosecution of the application may be expedited.

Respectfully submitted,



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Date: October 25, 2001

"VERSION WITH MARKING TO SHOW CHANGES MADE."

Claims 9 and 10 have been canceled without prejudice.

Claims 1-7, 11-15, 17-26, 28, 29, 31, 34 and 36 have been amended as follows:

1. (Twice Amended) An isolated ~~D~~dermal sheath tissue and/or a cell derived therefrom comprising ~~wherein said tissue and/or said cell can be comprised by a gene therapy vehicle for delivering~~ at least one selected gene, or functional fragment thereof, and wherein said at least one selected gene, or functional fragment thereof can be delivered to a target site when said dermal sheath tissue is part of a gene therapy vehicle.

2. (Twice Amended) A gene therapy vehicle for delivering at least one selected gene, or functional fragment thereof, to a target site wherein said gene therapy vehicle comprises isolated dermal sheath tissue and/or a cell derived therefrom.

3. (Twice Amended) The ~~D~~dermal sheath tissue or a cell derived therefrom ~~according to~~ of Claim 1 wherein said dermal sheath tissue or cell is derived from the lower portion of a hair follicle.

4. (Twice Amended) The ~~D~~dermal sheath tissue or a cell derived therefrom ~~according to~~ of Claim 3 wherein said dermal sheath tissue or cell is derived from a lower third of said hair follicle.

5. (Twice Amended) The ~~D~~dermal sheath tissue or a cell derived therefrom ~~according to~~ of Claim 3 wherein said dermal sheath tissue or said cell is derived from a segment or ring of a combination of follicle/tissue cells.

6. (Twice Amended) A gene therapy vehicle according to Claim 2 which is ~~suitably~~ engineered by recombinant techniques so as to include at least one insertion site into which at least one selected gene can be placed.

7. (Twice Amended) A gene therapy vehicle according to Claim 6 wherein said selected gene is ~~functionally~~ inserted into said gene therapy vehicle so that the expression of said selected gene results in the provision of the corresponding protein product.

11. (Twice Amended) A gene therapy vehicle according to Claim 2 wherein said selected gene for insertion is ~~arranged so as to be~~ inserted in frame with the genome of the gene therapy vehicle so as to provide for correct expression of said selected gene.

12. (Twice Amended) A gene therapy vehicle according to Claim 2 further comprising a promoter wherein said selected gene is ~~operationally linked to a~~ under the transcriptional control of said promoter.

13. (Twice Amended) A gene therapy vehicle according to Claim 12 wherein said ~~selected gene, is operationally linked to~~ promoter is an inducible promoter.

14. (Twice Amended) A gene therapy vehicle according to Claim 12 wherein said ~~selected gene, is operationally linked to~~ promoter is a constitutive promoter. ;

15. (Twice Amended) A vector ~~for transforming or transfecting~~ comprising the gene therapy vehicle of Claim 2 wherein said vector is ~~provided with~~ further comprises

(i) at least one insertion site ~~into which~~ for at least one selected gene, or functional fragment thereof, ~~can be placed~~ and ~~also~~

(ii) other expression control elements for ensuring that once the vector infects or penetrates said tissue and/or cells of said gene therapy vehicle, expression of said selected gene can take place.

17. (Amended) A therapeutic composition according to Claim 16 wherein said composition ~~is formulated to have~~ has anti-bacterial properties.

18. (Amended) A therapeutic composition according to Claim 16 wherein said composition ~~is formulated to have~~ has anti-septic properties.

19. (Twice Amended) A therapeutic composition according to Claim 16 wherein said composition ~~is formulated to include~~ further comprises growth promoting additives.

20. (Twice Amended) A therapeutic composition according to Claim 16 wherein said composition ~~is formulated to include~~ further comprises at least one anaesthetic.

21. (Twice Amended) A therapeutic composition according to Claim 16 for topical application wherein said therapeutic composition ~~cells~~ is ~~adapted to be applied topically in the form of dermal sheath cells~~ provided in a suitable carrier solution, gel, cream, or emollient.

22. (Twice Amended) A therapeutic composition according to Claim 16 wherein said therapeutic composition ~~cells is adapted to be administered by injection and so~~ comprises a carrier solution as said carrier.

23 (Twice Amended) A therapeutic appliance that comprises a therapeutic composition according to Claim 16 wherein said carrier is incorporated and/or embedded therein, ~~and/or associated therewith.~~ and/or attached thereto, a plaster or bandage.

24. (Twice Amended) A gene therapy vehicle for use in delivering a selected gene, or functional fragment thereof, to a given site wherein said gene therapy vehicle comprises dermal sheath tissue and/or a cell derived therefrom, which tissue and/or cells ~~have been suitably adapted to accommodate~~ comprise heterologous genetic material and which, in vivo, ~~have the capacity to selectively~~ said dermal sheath tissue and/or cell differentiate to provide at least one differentiated tissue type.

25. (Twice Amended) A gene therapy vehicle according to Claim 24 which ~~is adapted to be provided~~ acts as a wound healing system.

26. (Twice ~~Amended)~~ A wound healing system comprising a suitable matrix material having incorporated and/or embedded therein, ~~and/or associated therewith,~~ and/or attached thereto, a gene therapy vehicle according to Claim 24.

28. (Twice Amended) A wound healing system according to Claim 26 wherein said matrix material comprises collagenous gels or lattices constructed from reconstituted collagen ~~or highly complex mixtures of reconstructed collagen~~.

29. (Twice Amended) A wound healing system according to Claim 28 wherein said matrix material comprises components from an extra cellular matrix ~~products~~.

31. (Twice Amended) A wound healing system according to Claim 30 ~~adapted for use in the~~ for treatment of acute, and/or chronic, and/or minor, and/or severe, wound healing.

34. (Twice Amended) A wound healing system according to Claim 33 wherein one of said cell types, in addition to said dermal sheath tissue, and/or said cell derived therefrom ~~and/or cells typically closely associated with hair follicles~~, comprises dermal papilla tissue.

36. (Twice Amended) A therapeutic composition according to Claim 34 wherein one of said cell types, in addition to said dermal sheath tissue, and/or said cell derived therefrom, ~~and/or cells typically closely associated with hair follicles~~, comprises dermal papilla tissue.